

ABSTRACT OF THE DISCLOSURE

An encapsulation material suitable for dissipating heat generated by an electronic module, such as by directly contacting a heat-generating power device or contacting a heat sink of a heat-generating power device. The encapsulation material comprises phase change particles dispersed in a gel material. The phase change particles preferably comprise a solder alloy encapsulated by a dielectric coating so the phase change particles are electrically insulated from each other. The encapsulation material may further comprise dielectric particles dispersed in the gel material for the purpose of increasing the thermal conductivity of the encapsulation material. Alternatively or in addition, the dielectric coating on the phase change particles may comprise dielectric particles that are dispersed in a dielectric matrix, again with the preferred effect of increasing the thermal conductivity of the encapsulation material.